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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/570,553	03/03/2006	Benjamin Chu	R-7695 (1339-5 PCT US)	9958
31554 7590 02/05/2009 CARTER, DELUCA, FARRELL & SCHMIDT, LLP 445 BROAD HOLLOW ROAD SUITE 420 MELVILLE, NY 11747			EXAMINER CHIN, HUI H	
			ART UNIT 1796	PAPER NUMBER
			MAIL DATE 02/05/2009	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/570,553	Applicant(s) CHU ET AL.	
	Examiner HUI CHIN	Art Unit 4131	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 and 29-31 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-11 and 29-31 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

1. This office action is in response to the Amendment filed on 1/6/2009. In view of the Amendment, the priority date is sworn back to the date before the filing date of the reference. Thus, the rejections over Rodrigues are withdrawn.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-4, 8, and 29-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sun et al. (US 2003/0001141) in view of Dupire et al. (US Patent 6,331,265).

Sun et al. disclose a nanocomposite comprising a mixture of carbon nanotubes and an electron emitting element and an organic polymer such as polyolefins, wherein the electron donor compound consisting of amino group (claims 2, 12, and 13). Sun et al. further disclose that small amount of nanotubes can be added to plastics but do not disclose the specific amount ([0059]).

Dupire et al. disclose that the quantity of carbon nanotubes added to a given quantity of polymer is not particularly limited, typically 30% by weight is preferred (col. 4, line 36) and the example uses 3 wt.% of carbon nanotubes (example). Thus, it is

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obvious to one of ordinary skill in the art at the time the invention was made to use 30 wt. % or less of carbon nanotube with the expected success.

For claims 2-4

Sun et al. disclose the use of single wall carbon nanotubes, multiwall carbon nanotubes, and carbon nanofibers (paragraphs [0021] and [0060]).

For claims 4 and 30

Dupire et al. disclose the fiber (claim 1).

For claim 8

Dupire et al. disclose the polyethylene (claim 10).

For claims 29

Sun et al. disclose the composition (claims 2, 12, and 13).

4. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sun et al. in view of Dupire et al. as applied to claim 1 above, and further in view of Wu et al. (*Macromolecules* 2003, 36, 6286-6288).

The disclosure of Sun et al. in view of Dupire et al. is adequately set forth in paragraph 3 and is incorporated herein by reference.

However, Sun et al. in view of Dupire et al. is silent on the ethylenically unsaturated functionalities on carbon nanotubes.

Wu et al. teach the functionalization of carbon nanotubes by modifying the nanotubes with polybutadiene (col. 1 on page 6286) to obtain materials in the

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applications ranging from nanotube-based electronics to polymer-based electronics (col. 1 on page 6288). In light of such benefit, it would have been obvious to one of ordinary skill in the art at the time the invention was made to make the nanocomposite with the expected success because Wu et al. demonstrate that the nanotube can be modified with polybutadiene.

5. Claims 6-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sun et al. in view of Dupire et al. as applied to claim 1 above, and further in view of Haddon et al. (US Patent 6,531,513).

The disclosure of Sun et al. in view of Dupire et al. is adequately set forth in paragraph 3 and is incorporated herein by reference.

However, Sun et al. in view of Dupire et al. is silent on the specific R'NH₂.

Haddon et al. teach that functionalization of carbon nanotubes by attaching an aliphatic amine wherein the amine is octadecylamine (col 5. lines 29-30) to improve compatibility which can provide the processing of the nanotubes into useful products for various applications including as intermediates in the preparation of composite materials (col. 2 lines 44-50). In light of such benefit, it would have been obvious to one of ordinary skill in the art at the time the invention was made to make the nanocomposite with the expected success because Haddon et al. demonstrate that the functionalized nanotube with octadecylamine can be used to make the nanocomposite.

The limitations of claims 6 and 7 can be found in Haddon at col. 4, line 34, where it discloses the use of octadecylamine.

6. Claim 9 is rejected under U.S.C. 103(a) as being unpatentable over Sun et al. in view of Dupire et al. as applied to claim 1 above, and further in view of Ruan et al. (*Polymer*, 2003, 44, 5643-5654).

The disclosure of Sun et al. in view of Dupire et al. is adequately set forth in paragraph 3 and is incorporated herein by reference.

However, Sun et al. in view of Dupire et al. is silent on the ultra-high molecular weight polyethylene.

Ruan et al. disclose a nanocomposite comprising ultra-high molecular weight polyethylene and carbon nanotubes to provide enhanced toughness (abstract). In light of such benefit, it would have been obvious to one of ordinary skill in the art at the time the invention was made to make the nanocomposite with the expected success.

7. Claims 10-11 and 30-31 are rejected under U.S.C. 103(a) as being unpatentable over Sun et al. in view of Dupire et al. as applied to claim 1 above, and further in view of Loontjens et al. (US 2002/0161096).

The disclosure of Sun et al. in view of Dupire et al. is adequately set forth in paragraph 3 and is incorporated herein by reference.

However, Sun et al. in view of Dupire et al. is silent on the film.

Loontjens discloses that a nanocomposite can be used to produce fiber and film ([0004]). Thus, the nanocomposite disclosed by Sun et al. in view of Dupire et al. would

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be fabricated into fiber and film because Loontjens demonstrate the similar nanocomposite which can be made into fiber and film. Accordingly, it would have been obvious to one of ordinary skill in the art at the time the invention was made to make the fiber and film from the nanocomposite disclosed by Sun et al. in view of Dupire et al. with the expected success.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to HUI CHIN whose telephone number is (571)270-7350. The examiner can normally be reached on Monday to Friday; 8:00am - 5:00pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Sample can be reached on 571-272-1376. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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/Ling-Siu Choi/
Primary Examiner, Art Unit 1796

/HC/